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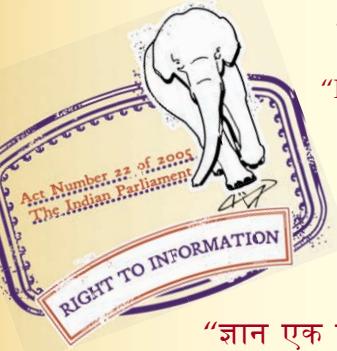
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IS 12051 (1987): Reference tables for
nickel-chromium-silicon (Nicrosil/Nisil) Type N
Thermocouples [ETD 18: Industrial Process Measurement and
Control]

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Indian Standard

REFERENCE TABLES FOR
NICKEL-CHROMIUM-SILICON/NICKEL-
SILICON (NICROSIL/NISIL) TYPE N
THERMOCOUPLE

UDC 621.362.1 : 536.532 (083.5)

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Indian Standard

REFERENCE TABLES FOR
 NICKEL-CHROMIUM-SILICON/NICKEL-
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 THERMOCOUPLE

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Indian Standard

REFERENCE TABLES FOR NICKEL-CHROMIUM-SILICON/NICKEL- SILICON (NICROSIL/NISIL) TYPE N THERMOCOUPLE

0. F O R E W O R D

0.1 This Indian Standard was adopted by the Bureau of Indian Standards on 29 April 1987, after the draft finalized by the Industrial Process Measurement and Control Sectional Committee had been approved by the Electrotechnical Division Council.

0.2 This new thermocouple combination has been developed as the result of a cooperative programme between the Material Research Laboratories of the Australian Department of Defence and the National Bureau of Standards of United States of America*. It has been introduced because it offers superior stability and a higher maximum working temperature than the extensively used nickel-chromium/nickel-aluminium thermocouple (Type K).

0.3 While preparing the standard, assistance has been derived from IEC Publication 584 Thermocouples and IEC draft 65B (Secretariat) 104 Draft-Amendment No. 1 to Publication 584 Thermocouples, Part 1 Reference Tables, and BS 4937 Thermocouple reference tables for Part 8 Nickel-chromium-silicon/nickel-silicon (Nicrosil/Nisil), Type N.

0.4 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS : 2-1960†. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This Indian Standard gives reference tables for nickel-chromium-silicon/nickel-silicon thermocouple for use in converting thermocouple

*American National Bureau of Standards Monograph, 161. 1978.

†Rules for rounding off numerical values (revised).

voltages into their equivalent measured temperature. They do not include tolerances of manufacture for thermocouple wire.

2. REFERENCE TABLE

2.1 The reference tables are given as follows :

Table 1 EMF, microvolts (μ V) vs Temperature, degrees C

Table 2 Temperature, degrees C vs EMF, microvolts (μ V)

2.2 The tables are based on IPTS-68 (International Practical Temperature Scale of 1968) and developed from the polynomials given in Appendix A.

TABLE 1 NICKEL-CHROMIUM-SILICON/NICKEL-SILICON (NICROSIL/NISIL) THERMOCOUPLES, TYPE N
Reference junction at 0°C

EMF μV	0	50	100	150	200	250	300	350	400	450
Temperature °C										
-4 000	-201.0	-206.3	-212.0	-218.4	-225.6	-234.3	-245.9			
-3 500	-160.6	-164.0	-167.5	-171.2	-174.9	-178.8	-182.8	-187.0	-191.4	-196.0
-3 000	-130.3	-133.1	-135.9	-138.8	-141.7	-144.7	-147.8	-150.9	-154.0	-157.3
-2 500	-104.5	-107.0	-109.4	-111.9	-114.5	-117.0	-119.6	-122.2	-124.9	-127.6
-2 000	-81.2	-83.5	-85.7	-88.0	-90.3	-92.6	-95.0	-97.3	-99.7	-102.1
-1 500	-59.6	-61.7	-63.8	-66.0	-68.1	-70.3	-72.4	-74.6	-76.8	-79.0
-1 000	-39.1	-41.1	-43.1	-45.2	-47.2	-49.2	-51.3	-53.4	-55.4	-57.5
-500	-19.3	-21.3	-23.2	-25.2	-27.1	-29.1	-31.1	-33.1	-35.1	-37.1
0	0.0	-1.9	-3.8	-5.7	-7.7	-9.6	-11.5	-13.5	-15.4	-17.4
5	0	0.0	1.9	3.9	5.8	7.7	9.6	11.5	13.4	15.3
	500	19.1	20.9	22.8	24.7	26.6	28.4	30.3	32.1	34.0
	1 000	37.6	39.5	41.3	43.1	45.0	46.8	48.6	50.4	52.2
	1 500	55.8	57.6	59.3	61.1	62.9	64.7	66.4	68.2	69.9
	2 000	73.4	75.2	76.9	78.7	80.4	82.1	83.9	85.6	87.3
10	2 500	90.7	92.4	94.1	95.8	97.5	99.2	100.9	102.6	104.3
	3 000	107.6	109.3	110.9	112.6	114.3	115.9	117.6	119.2	120.9
	3 500	124.1	125.8	127.4	129.1	130.7	132.3	133.9	135.5	137.2
	4 000	140.4	142.0	143.6	145.2	146.8	148.4	150.0	151.6	153.2
	4 500	156.3	157.9	159.5	161.1	162.6	164.2	165.8	167.3	168.9
15	5 000	172.0	173.6	175.1	176.7	178.2	179.8	181.3	182.8	184.4
	5 500	187.4	189.0	190.5	192.0	193.6	195.1	196.6	198.1	199.6
	6 000	202.7	204.2	205.7	207.2	208.7	210.2	211.7	213.2	214.7
	6 500	217.7	219.2	220.7	222.2	223.7	225.1	226.6	228.1	229.6
	7 000	232.5	234.0	235.5	237.0	238.4	239.9	241.4	242.8	244.3
20	7 500	247.2	248.7	250.1	251.6	253.0	254.5	255.9	257.4	258.8
	8 000	261.7	263.2	264.6	266.1	267.5	268.9	270.4	271.8	273.3
	8 500	276.1	277.6	279.0	280.4	281.8	283.3	284.7	286.1	287.5
	9 000	290.4	291.8	293.2	294.6	296.0	297.5	298.9	300.3	301.7
	9 500	304.5	305.9	307.3	308.7	310.1	311.5	312.9	314.3	315.7

(Continued)

TABLE 1 NICKEL-CHROMIUM-SILICON/NICKEL-SILICON (NICROSIL/NISIL) THERMOCOUPLES, TYPE N

— Contd

Reference junction at 0°C

EMF µV	0	50	100	150	200	250	300	350	400	450
Temperature, °C										
10 000	318.5	319.9	321.3	322.7	324.1	325.5	326.9	328.3	329.7	331.1
10 500	332.5	333.8	335.2	336.6	338.0	339.4	340.8	342.1	343.5	344.9
11 000	346.3	347.7	349.0	350.4	351.8	353.2	354.5	355.9	357.3	358.6
11 500	360.0	361.4	362.8	364.1	365.5	366.9	368.2	369.6	370.9	372.3
12 000	373.7	375.0	376.4	377.8	379.1	380.5	381.8	383.2	384.5	385.9
12 500	387.2	388.6	390.0	391.3	392.7	394.0	395.4	396.7	398.1	399.4
13 000	400.7	402.1	403.4	404.8	406.1	407.5	408.8	410.2	411.5	412.8
13 500	414.2	415.5	416.9	418.2	419.5	420.9	422.2	423.6	424.9	426.2
14 000	427.6	428.9	430.2	431.6	432.9	434.2	435.6	436.9	438.2	439.5
14 500	440.9	442.2	443.5	444.9	446.2	447.5	448.8	450.2	451.5	452.8
15 000	454.1	455.5	456.8	458.1	459.4	460.7	462.1	463.4	464.7	466.0
15 500	467.3	468.7	470.0	471.3	472.6	473.9	475.2	476.6	477.9	479.2
16 000	480.5	481.8	483.1	484.4	485.7	487.1	488.4	489.7	491.0	492.3
16 500	493.6	494.9	496.2	497.5	498.8	500.1	501.5	502.8	504.1	505.4
17 000	506.7	508.0	509.3	510.6	511.9	513.2	514.5	515.8	517.1	518.4
17 500	519.7	521.0	522.3	523.6	524.9	526.2	527.5	528.8	530.1	531.4
18 000	532.7	534.0	535.3	536.6	537.9	539.2	540.5	541.8	543.1	544.4
18 500	545.7	546.9	548.2	549.5	550.8	552.1	553.4	554.7	556.0	557.3
19 000	558.6	559.9	561.2	562.5	563.7	565.0	566.3	567.6	568.9	570.2
19 500	571.5	572.8	574.1	575.3	576.6	577.9	579.2	580.5	581.8	583.1
20 000	584.3	585.6	586.9	588.2	589.5	590.8	592.1	593.3	594.6	595.9
20 500	597.2	598.5	599.8	601.0	602.3	603.6	604.9	606.2	607.5	608.7
21 000	610.0	611.3	612.6	613.9	615.1	616.4	617.7	619.0	620.3	621.5
21 500	622.8	624.1	625.4	626.7	627.9	629.2	630.5	631.8	633.1	634.3
22 000	635.6	636.9	638.2	639.4	640.7	642.0	643.3	644.5	645.8	647.1
22 500	648.4	649.7	650.9	652.2	653.5	654.8	656.0	657.3	658.6	659.9
23 000	661.1	662.4	663.7	665.0	666.2	667.5	668.8	670.1	671.3	672.6
23 500	673.9	675.2	676.4	677.7	679.0	680.2	681.5	682.8	684.1	685.3
24 000	686.6	687.9	689.2	690.4	691.7	693.0	694.3	695.5	696.8	698.1
24 500	699.3	700.6	701.9	703.2	704.4	705.7	707.0	708.2	709.5	710.8

25 000	712.1	713.3	714.6	715.9	717.2	718.4	719.7	721.0	722.2	723.5
25 500	724.8	726.1	727.3	728.6	729.9	731.1	732.4	733.7	735.0	736.2
26 000	737.5	738.8	740.0	741.3	742.6	743.9	745.1	746.4	747.7	748.9
26 500	750.2	751.5	752.8	754.0	755.3	756.6	757.9	759.1	760.4	761.7
27 000	762.9	764.2	765.5	766.8	768.0	769.3	770.6	771.8	773.1	774.4
27 500	775.7	776.9	778.2	779.5	780.7	782.0	783.3	784.6	785.8	787.1
28 000	788.4	789.7	790.9	792.2	793.5	794.7	796.0	797.3	798.6	799.8
28 500	801.1	802.4	803.7	804.9	806.2	807.5	808.8	810.0	811.3	812.6
29 000	813.9	815.1	816.4	817.7	819.0	820.2	821.5	822.8	824.1	825.3
29 500	826.6	827.9	829.2	830.4	831.7	833.0	834.3	835.5	836.8	838.1
30 000	839.4	840.6	841.9	843.2	844.5	845.7	847.0	848.3	849.6	850.9
30 500	852.1	853.4	854.7	856.0	857.2	858.5	859.8	861.1	862.4	863.6
31 000	864.9	866.2	867.5	868.7	870.0	871.3	872.6	873.9	875.1	876.4
31 500	877.7	879.0	880.3	881.5	882.8	884.1	885.4	886.7	887.9	889.2
32 000	890.5	891.8	893.1	894.4	895.6	896.9	898.2	899.5	900.8	902.0
32 500	903.3	904.6	905.9	907.2	908.5	909.7	911.0	912.3	913.6	914.9
33 000	916.2	917.5	918.7	920.0	921.3	922.6	923.9	925.2	926.5	927.7
33 500	929.0	930.3	931.6	932.9	934.2	935.5	936.7	938.0	939.3	940.6
34 000	941.9	943.2	944.5	945.8	947.0	948.3	949.6	950.9	952.2	953.5
34 500	945.8	956.1	957.4	958.7	959.9	961.2	962.5	963.8	965.1	966.4
35 000	967.7	969.0	970.3	971.6	972.9	974.2	975.4	976.7	978.0	979.3
35 500	980.6	981.9	983.2	984.5	985.8	987.1	988.4	989.7	991.0	992.3
36 000	993.6	994.9	996.2	997.5	998.8	1 000.0	1 001.3	1 002.6	1 003.9	1 005.2
36 500	1 006.5	1 007.8	1 009.1	1 010.4	1 011.7	1 013.0	1 014.3	1 015.6	1 016.9	1 018.2
37 000	1 019.5	1 020.8	1 022.1	1 023.4	1 024.7	1 026.0	1 027.3	1 028.6	1 029.9	1 031.2
37 500	1 032.5	1 033.8	1 035.1	1 036.4	1 037.8	1 039.1	1 040.4	1 041.7	1 043.0	1 044.3
38 000	1 045.6	1 046.9	1 048.2	1 049.5	1 050.8	1 052.1	1 053.4	1 054.7	1 056.0	1 057.3
38 500	1 058.6	1 059.9	1 061.3	1 062.6	1 063.9	1 065.2	1 066.5	1 067.8	1 069.1	1 070.4
39 000	1 071.7	1 073.0	1 074.3	1 075.7	1 077.0	1 078.3	1 079.6	1 080.9	1 082.2	1 083.5
39 500	1 084.8	1 086.2	1 087.5	1 088.8	1 090.1	1 091.4	1 092.7	1 094.0	1 095.4	1 096.7
40 000	1 098.0	1 099.3	1 100.6	1 101.9	1 103.3	1 104.6	1 105.9	1 107.2	1 108.5	1 109.8
40 500	1 111.2	1 112.5	1 113.8	1 115.1	1 116.4	1 117.8	1 119.1	1 120.4	1 121.7	1 123.1
41 000	1 124.4	1 125.7	1 127.0	1 128.3	1 129.7	1 131.0	1 132.3	1 133.6	1 135.0	1 136.3
41 500	1 137.6	1 138.9	1 140.3	1 141.6	1 142.9	1 144.2	1 145.6	1 146.9	1 148.2	1 149.6
42 000	1 150.9	1 152.2	1 153.6	1 154.9	1 156.2	1 157.5	1 158.9	1 160.2	1 161.5	1 162.9

(Continued)

TABLE 1 NICKEL-CHROMIUM-SILICON/NICKEL-SILICON (NICROSIL/NISIL) THERMOCOUPLES, TYPE N

— *Contd*

Reference junction at 0°C

EMF μV	0	50	100	150	200	250	300	350	400	450
Temperature, °C										
42 500	1 164.2	1 165.5	1 166.9	1 168.2	1 169.5	1 170.9	1 172.2	1 173.6	1 174.9	1 176.2
43 000	1 177.6	1 178.9	1 180.2	1 181.6	1 182.9	1 184.3	1 185.6	1 186.9	1 188.3	1 189.6
43 500	1 191.0	1 192.3	1 193.7	1 195.0	1 196.3	1 197.7	1 199.0	1 200.4	1 201.7	1 203.1
44 000	1 204.4	1 205.8	1 207.1	1 208.5	1 209.8	1 211.2	1 212.5	1 213.9	1 215.2	1 216.6
44 500	1 217.9	1 219.3	1 220.6	1 222.0	1 223.3	1 224.7	1 226.0	1 227.4	1 228.7	1 230.1
45 000	1 231.4	1 232.8	1 234.2	1 235.5	1 236.9	1 238.2	1 239.6	1 241.0	1 242.3	1 243.7
45 500	1 245.0	1 246.4	1 247.8	1 249.1	1 250.5	1 251.9	1 253.2	1 254.6	1 256.0	1 257.3
46 000	1 258.7	1 260.1	1 261.4	1 262.8	1 264.2	1 265.5	1 266.9	1 268.3	1 269.6	1 271.0
46 500	1 272.4	1 273.8	1 275.1	1 276.5	1 277.9	1 279.3	1 280.6	1 282.0	1 283.4	1 284.8
47 000	1 286.1	1 287.5	1 288.9	1 290.3	1 291.7	1 293.0	1 294.4	1 295.8	1 297.2	1 298.6

TABLE 2 NICKEL-CHROMIUM-SILICON/NICKEL-SILICON (NICROSIL/NISIL) THERMOCOUPLES, TYPE N
Reference junction at 0°C

Temperature, °C	0	1	2	3	4	5	6	7	8	9
EMF, μ V										
—270	—4 345									
—260	—4 336	—4 337	—4 339	—4 340	—4 341	—4 342	—4 343	—4 344	—4 344	—4 345
—250	—4 313	—4 316	—4 319	—4 321	—4 324	—4 326	—4 328	—4 330	—4 332	—4 334
—240	—4 277	—4 281	—4 285	—4 289	—4 293	—4 297	—4 300	—4 304	—4 307	—4 310
—230	—4 227	—4 232	—4 238	—4 243	—4 248	—4 254	—4 259	—4 263	—4 268	—4 273
—220	—4 162	—4 169	—4 176	—4 183	—4 189	—4 196	—4 202	—4 209	—4 215	—4 221
—210	—4 038	—4 091	—4 100	—4 108	—4 116	—4 124	—4 132	—4 140	—4 147	—4 155
—200	—3 990	—4 000	—4 010	—4 020	—4 029	—4 038	—4 048	—4 057	—4 066	—4 074
—190	—3 884	—3 896	—3 907	—3 918	—3 928	—3 939	—3 950	—3 960	—3 970	—3 980
—180	—3 766	—3 778	—3 790	—3 803	—3 815	—3 827	—3 838	—3 850	—3 862	—3 873
—170	—3 634	—3 648	—3 661	—3 675	—3 688	—3 701	—3 715	—3 727	—3 740	—3 753
—160	—3 491	—3 506	—3 521	—3 535	—3 550	—3 564	—3 578	—3 592	—3 607	—3 620
—150	—3 336	—3 352	—3 368	—3 384	—3 399	—3 415	—3 430	—3 446	—3 461	—3 476
—140	—3 170	—3 187	—3 204	—3 221	—3 238	—3 255	—3 271	—3 288	—3 304	—3 320
—130	—2 994	—3 012	—3 030	—3 048	—3 066	—3 083	—3 101	—3 118	—3 136	—3 153
—120	—2 807	—2 827	—2 846	—2 864	—2 883	—2 902	—2 921	—2 939	—2 957	—2 976
—110	—2 612	—2 632	—2 651	—2 671	—2 691	—2 711	—2 730	—2 750	—2 769	—2 788
—100	—2 407	—2 427	—2 448	—2 469	—2 490	—2 510	—2 531	—2 551	—2 571	—2 591
—90	—2 193	—2 215	—2 237	—2 258	—2 280	—2 301	—2 322	—2 343	—2 365	—2 386
—80	—1 972	—1 995	—2 017	—2 039	—2 061	—2 084	—2 106	—2 128	—2 150	—2 171
—70	—1 744	—1 767	—1 790	—1 813	—1 836	—1 859	—1 882	—1 904	—1 927	—1 950
—60	—1 509	—1 533	—1 556	—1 580	—1 604	—1 627	—1 651	—1 674	—1 697	—1 721
—30	—1 268	—1 293	—1 317	—1 341	—1 365	—1 389	—1 413	—1 437	—1 461	—1 485

(Continued)

TABLE 2 NICKEL-CHROMIUM-SILICON/NICKEL-SILICON (NICKROSIL/NISIL) THERMOCOUPLES, TYPE N

— Contd

Reference junction at 0°C

Temper- ature, °C	0	1	2	3	4	5	6	7	8	9
EMF, μ V										
—40	—1 023	—1 047	—1 072	—1 097	—1 121	—1 146	—1 171	—1 195	—1 220	—1 244
—30	—772	—797	—823	—848	—873	—898	—923	—948	—973	—998
—20	—518	—544	—569	—595	—620	—646	—671	—696	—722	—747
—10	—260	—286	—312	—338	—364	—390	—415	—441	—467	—492
0	0	—26	—52	—78	—104	—130	—157	—183	—208	—234
10	0	26	52	78	104	130	156	182	208	234
	261	287	313	340	366	392	419	445	472	498
	525	551	578	605	632	658	685	712	739	766
	793	820	847	874	901	928	955	982	1 010	1 037
	1 064	1 092	1 119	1 146	1 174	1 201	1 229	1 256	1 284	1 312
50	1 339	1 367	1 395	1 423	1 451	1 479	1 506	1 534	1 562	1 591
	1 619	1 647	1 675	1 703	1 731	1 760	1 788	1 816	1 845	1 873
	1 902	1 930	1 959	1 987	2 016	2 045	2 073	2 102	2 131	2 160
	2 188	2 217	2 246	2 275	2 304	2 333	2 362	2 392	2 421	2 450
	2 479	2 508	2 538	2 567	2 596	2 626	2 655	2 685	2 714	2 744
100	2 774	2 803	2 833	2 863	2 892	2 922	2 952	2 982	3 012	3 042
	3 072	3 102	3 132	3 162	3 192	3 222	3 252	3 283	3 313	3 343
	3 374	3 404	3 434	3 465	3 495	3 526	3 557	3 587	3 618	3 648
	3 679	3 710	3 741	3 772	3 802	3 833	3 864	3 895	3 926	3 957
	3 988	4 019	4 050	4 082	4 113	4 144	4 175	4 207	4 238	4 269
150	4 301	4 332	4 364	4 395	4 427	4 458	4 490	4 521	4 553	4 585
	4 617	4 648	4 680	4 712	4 744	4 776	4 808	4 840	4 872	4 904
	4 936	4 968	5 000	5 032	5 064	5 097	5 129	5 161	5 193	5 226
	5 258	5 290	5 323	5 355	5 388	5 420	5 453	5 486	5 518	5 551
	5 584	5 616	5 649	5 682	5 715	5 747	5 780	5 813	5 846	5 879

200	5 912	5 945	5 978	6 011	6 044	6 077	6 110	6 144	6 177	6 210
210	6 243	6 277	6 310	6 343	6 377	6 410	6 443	6 477	6 510	6 544
220	6 577	6 611	6 645	6 678	6 712	6 745	6 779	6 813	6 847	6 880
230	6 914	6 948	6 982	7 016	7 050	7 084	7 118	7 152	7 186	7 220
240	7 254	7 288	7 322	7 356	7 390	7 424	7 458	7 493	7 527	7 561
250	7 596	7 630	7 664	7 699	7 733	7 767	7 802	7 836	7 871	7 905
260	7 940	7 975	8 009	8 044	8 078	8 113	8 148	8 182	8 217	8 252
270	8 287	8 321	8 356	8 391	8 426	8 461	8 496	8 531	8 566	8 601
280	8 636	8 671	8 706	8 741	8 776	8 811	8 846	8 881	8 916	8 952
290	8 987	9 022	9 057	9 093	9 128	9 163	9 198	9 234	9 269	9 305
300	9 340	9 375	9 411	9 446	9 482	9 517	9 553	9 589	9 624	9 660
310	9 695	9 731	9 767	9 802	9 838	9 874	9 909	9 945	9 981	10 017
320	10 053	10 088	10 124	10 160	10 196	10 232	10 268	10 304	10 340	10 376
330	10 412	10 448	10 484	10 520	10 556	10 592	10 628	10 664	10 700	10 736
340	10 772	10 809	10 845	10 881	10 917	10 954	10 990	11 026	11 062	11 099
350	11 135	11 171	11 208	11 244	11 281	11 317	11 354	11 390	11 426	11 463
360	11 499	11 536	11 572	11 609	11 646	11 682	11 719	11 755	11 792	11 829
370	11 865	11 902	11 939	11 975	12 012	12 049	12 086	12 122	12 159	12 196
380	12 233	12 270	12 306	12 343	12 380	12 417	12 454	12 491	12 528	12 565
390	12 602	12 639	12 676	12 713	12 750	12 787	12 824	12 861	12 898	12 935
400	12 972	13 009	13 046	13 084	13 121	13 158	13 195	13 232	13 269	13 307
410	13 344	13 381	13 418	13 456	13 493	13 530	13 568	13 605	13 642	13 680
420	13 717	13 754	13 792	13 829	13 867	13 904	13 942	13 979	14 017	14 054
430	14 091	14 129	14 167	14 204	14 242	14 279	14 317	14 354	14 392	14 430
440	14 467	14 505	14 542	14 580	14 618	14 655	14 693	14 731	14 769	14 806
450	14 844	14 882	14 919	14 957	14 995	15 033	15 071	15 108	15 146	15 184
460	15 222	15 260	15 298	15 335	15 373	15 411	15 449	15 487	15 525	15 563
470	15 601	15 639	15 677	15 715	15 753	15 791	15 829	15 867	15 905	15 943
480	15 981	16 019	16 057	16 095	16 133	16 172	16 210	16 248	16 286	16 324
490	16 362	16 400	16 439	16 477	16 515	16 553	16 591	16 630	16 668	16 706

(Continued)

TABLE 2 NICKEL-CHROMIUM-SILICON/NICKEL-SILICON (NICROSIL/NISIL) THERMOCOUPLES, TYPE N
— Contd
Reference junction at 0°C

Temperature, °C	0	1	2	3	4	5	6	7	8	9
EMF, μ V										
500	16 744	16 783	16 821	16 859	16 897	16 936	16 974	17 012	17 051	17 089
510	17 127	17 166	17 204	17 243	17 281	17 319	17 358	17 396	17 434	17 473
520	17 511	17 550	17 588	17 627	17 665	17 704	17 742	17 781	17 819	17 858
530	17 896	17 935	17 973	18 012	18 050	18 089	18 127	18 166	18 204	18 243
540	18 282	18 320	18 359	18 397	18 436	18 475	18 513	18 552	18 591	18 629
550	18 668	18 707	18 745	18 784	18 823	18 861	18 900	18 939	18 977	19 016
560	19 055	19 094	19 132	19 171	19 210	19 249	19 287	19 326	19 365	19 404
570	19 443	19 481	19 520	19 559	19 598	19 637	19 676	19 714	19 753	19 792
580	19 831	19 870	19 909	19 948	19 986	20 025	20 064	20 103	20 142	20 181
590	20 220	20 259	20 298	20 337	20 376	20 415	20 453	20 492	20 531	20 570
600	20 609	20 648	20 687	20 726	20 765	20 804	20 843	20 882	20 921	20 960
610	20 999	21 038	21 077	21 116	21 155	21 195	21 234	21 273	21 312	21 351
620	21 390	21 429	21 468	21 507	21 546	21 585	21 624	21 663	21 702	21 742
630	21 781	21 820	21 859	21 898	21 937	21 976	22 015	22 055	22 094	22 133
640	22 172	22 211	22 250	22 289	22 329	22 368	22 407	22 446	22 485	22 524
650	22 564	22 603	22 642	22 681	22 720	22 760	22 799	22 838	22 877	22 916
660	22 956	22 995	23 034	23 073	23 112	23 152	23 191	23 230	23 269	23 309
670	23 348	23 387	23 426	23 466	23 505	23 544	23 583	23 623	23 662	23 701
680	23 740	23 780	23 819	23 858	23 897	23 937	23 976	24 015	24 054	24 094
690	24 133	24 172	24 212	24 251	24 290	24 329	24 369	24 408	24 447	24 487
700	24 526	24 565	24 604	24 644	24 683	24 722	24 762	24 801	24 840	24 879
710	24 919	24 958	24 997	25 037	25 076	25 115	25 155	25 194	25 233	25 273
720	25 312	25 351	25 391	25 430	25 469	25 508	25 548	25 587	25 626	25 666
730	25 705	25 744	25 784	25 823	25 862	25 902	25 941	25 980	26 020	26 059
740	26 098	26 138	26 177	26 216	26 255	26 295	26 334	26 373	26 413	26 452
750	26 491	26 531	26 570	26 609	26 649	26 688	26 727	26 767	26 806	26 845
760	26 885	26 924	26 963	27 002	27 042	27 081	27 120	27 160	27 199	27 238
770	27 278	27 317	27 356	27 396	27 435	27 474	27 513	27 553	27 592	27 631
780	27 671	27 710	27 749	27 788	27 828	27 867	27 906	27 946	27 985	28 024
790	28 063	28 103	28 142	28 181	28 221	28 260	28 299	28 338	28 378	28 417

(Continued)

800	28 456	28 495	28 535	28 574	28 613	28 692	28 692	28 731	28 770	28 809
810	28 849	28 888	28 927	28 966	29 006	29 045	29 084	29 123	29 163	29 202
820	29 241	29 280	29 319	29 359	29 398	29 437	29 476	29 516	29 555	29 594
830	29 633	29 672	29 712	29 751	29 790	29 829	29 868	29 908	29 947	29 986
840	30 025	30 064	30 103	30 143	30 182	30 221	30 260	30 299	30 338	30 378
850	30 417	30 456	30 495	30 534	30 573	30 612	30 652	30 691	30 730	30 769
860	30 808	30 847	30 886	30 925	30 964	31 004	31 043	31 082	31 121	31 160
870	31 199	31 238	31 277	31 316	31 355	31 394	31 434	31 473	31 512	31 551
880	31 590	31 629	31 668	31 707	31 746	31 785	31 824	31 863	31 902	31 941
890	31 980	32 019	32 058	32 097	32 136	32 175	32 214	32 253	32 292	32 331
900	32 370	32 409	32 448	32 487	32 526	32 565	32 604	32 643	32 682	32 721
910	32 760	32 799	32 838	32 877	32 916	32 955	32 993	33 032	33 071	33 110
920	33 149	33 188	33 227	33 266	33 305	33 344	33 382	33 421	33 460	33 499
930	33 538	33 577	33 616	33 655	33 693	33 732	33 771	33 810	33 849	33 888
940	33 926	33 965	34 004	34 043	34 082	34 121	34 159	34 198	34 237	34 276
950	34 315	34 353	34 392	34 431	34 470	34 508	34 547	34 586	34 625	34 663
960	34 702	34 741	34 780	34 818	34 857	34 896	34 935	34 973	35 012	35 051
970	35 089	35 128	35 167	35 205	35 244	35 283	35 321	35 360	35 399	35 437
980	35 476	35 515	35 553	35 592	35 631	35 669	35 708	35 747	35 785	35 824
990	35 862	35 901	35 940	35 978	36 017	36 055	36 094	36 132	36 171	36 210
1 000	36 248	36 287	36 325	36 364	36 402	36 441	36 479	36 518	36 556	36 595
1 010	36 633	36 672	36 710	36 749	36 787	36 826	36 864	36 903	36 941	36 980
1 020	37 018	37 057	37 095	37 134	37 172	37 210	37 249	37 287	37 326	37 364
1 030	37 402	37 441	37 479	37 518	37 556	37 594	37 633	37 671	37 710	37 748
1 040	37 786	37 825	37 863	37 901	37 940	37 978	38 016	38 055	38 093	38 131
1 050	38 169	38 208	38 246	38 284	38 323	38 361	38 399	38 437	38 476	38 514
1 060	38 552	38 590	38 628	38 667	38 705	38 743	38 781	38 819	38 858	38 896
1 070	38 934	38 972	39 010	39 049	39 087	39 125	39 163	39 201	39 239	39 277
1 080	39 315	39 354	39 392	39 430	39 468	39 506	39 544	39 582	39 620	39 658
1 090	39 696	39 734	39 772	39 810	39 848	39 886	39 924	39 962	40 000	40 038
1 100	40 076	40 114	40 152	40 190	40 228	40 266	40 304	40 342	40 380	40 418
1 110	40 456	40 494	40 532	40 570	40 607	40 645	40 683	40 721	40 759	40 797
1 120	40 835	40 872	40 910	40 948	40 986	41 024	41 062	41 099	41 137	41 175
1 130	41 213	41 250	41 288	41 326	41 364	41 401	41 439	41 477	41 515	41 552
1 140	41 590	41 628	41 665	41 703	41 741	41 778	41 816	41 854	41 891	41 929

TABLE 2 NICKEL-CHROMIUM-SILICON/NICKEL-SILICON (NICROSIL/NISIL) THERMOCOUPLES, TYPE N

— Contd

Reference junction at 0°C